Complete Summary

GUIDELINE TITLE

The diagnosis and management of rhinitis. An updated practice parameter.

BIBLIOGRAPHIC SOURCE(S)

Wallace DV, Dykewicz MS, Bernstein DI, Blessing-Moore J, Cox L, Khan DA, Lang DM, Nicklas RA, Oppenheimer J, Portnoy JM, Randolph CC, Schuller D, Spector SL, Tilles SA, Joint Task Force on Practice, American Academy of Allergy, Asthma & Immunology, American College of Allergy, Asthma and Immunology, Joint Council of Allergy, Asthma and Immunology. The diagnosis and management of rhinitis: an updated practice parameter. J Allergy Clin Immunol 2008 Aug;122(2 Suppl):S1-84. [998 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Diagnosis and management of rhinitis. Ann Allergy Asthma Immunol 1998 Nov;81(5 Pt 2):478-518. [297 references]

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Rhinitis

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Prevention
Risk Assessment
Treatment

CLINICAL SPECIALTY

Allergy and Immunology
Family Practice
Geriatrics
Internal Medicine
Otolaryngology
Pediatrics
Preventive Medicine

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

- To update the 1998 practice parameter on diagnosis and management of rhinitis
- To improve the care of patients by providing the practicing physician with an evidence-based approach by reviewing data in the medical literature and incorporating this evidence into development of this guideline

TARGET POPULATION

Adults (including pregnant women and the elderly) and children with rhinitis

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis/Evaluation/Risk Assessment

1. Allergic history
2. Physical examination with the emphasis on upper respiratory tract
3. Specific immunoglobulin E (IgE) antibody test (e.g., skin prick test)
4. Fiber optic nasal endoscopy, computed tomography (CT), magnetic resonance imaging (MRI)
5. Rhinomanometry if indicated
6. Nasal cytology (not recommended for routine use)
7. Testing for comorbidities
8. Tests without diagnostic validity: total serum IgE and immunoglobulin G (IgG), cytotoxic tests, provocation-neutralization, electrodermal testing, applied kinesiology, iridology, and hair analysis
9. Risk factor assessment
10. Differential diagnosis, including nasal biopsy, beta-2-transferrin test

Management/Treatment

1. Environmental control measures
2. Pharmacologic therapies including: oral and intranasal antihistamines, oral and topical decongestants, intranasal and oral corticosteroids, intranasal cromolyn, intranasal anticholinergics, oral antileukotriene agents, nasal saline, over-the-counter cough and cold medication, and combination therapy (e.g., leukotriene receptor antagonists with antihistamines)
3. Allergen immunotherapy
4. Surgical approaches for comorbid conditions
5. Education of patient and caregivers
6. Special considerations for pregnant patients, athletes, and elderly
7. Consultation with an allergist-immunologist

MAJOR OUTCOMES CONSIDERED

- Accuracy of diagnostic tests
- Symptomatic relief
- Assessment of impact of symptoms of rhinitis on the patient's quality of life (i.e., the Medical Outcomes Study Short Form Healthy Survey [SF36]; the Rhinoconjunctivitis Quality of Life Questionnaire)
- Direct and indirect cost of rhinitis (i.e., loss of workplace productivity resulting from the disease)
- Adverse effects of treatment

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

A comprehensive search of the Cochrane Database of Systemic Reviews, MEDLINE, and PubMed was performed to identify literature germane to its assembly of the guideline.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Ia Evidence from meta-analysis of randomized controlled trials

Ib Evidence from at least 1 randomized controlled trial

IIa Evidence from at least 1 controlled study without randomization

IIb Evidence from at least 1 other type of quasi-experimental study

III Evidence from nonexperimental descriptive studies, such as comparative studies

IV Evidence from expert committee reports or opinions or clinical experience of respected authorities, or both

LB Evidence from laboratory-based studies

NR Not rated

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Published clinical studies or reports were rated by category of evidence and used to establish the strength of the clinical recommendations.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Using the 1998 practice parameter on ''Diagnosis and Management of Rhinitis'' as the basis, the working draft of this updated rhinitis practice parameter was prepared by the work group and was revised and edited by the Joint Task Force on Practice Parameters.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

A. Directly based on category I evidence
B. Directly based on category II evidence or extrapolated recommendation from category I evidence
C. Directly based on category III evidence or extrapolated recommendation from category I or II evidence
D. Directly based on category IV evidence or extrapolated recommendation from category I, II, or III evidence

COST ANALYSIS

Published cost analyses were reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

This practice parameter was reviewed by experts on rhinitis selected by the sponsoring organizations of the American Academy of Allergy, Asthma and Immunology and the American College of Allergy, Asthma, and Immunology.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Guideline recommendations are presented in the form of summary statements. After each statement is a letter that indicates the strength of the recommendation. Grades of recommendations (A-D) and levels of evidence (Ia, Ib, IIa, IIb, III, IV, LB [evidence from laboratory-based studies], and NR [Not rated]) are defined at the end of the "Major Recommendations" field.

Key Updates

The following is a list of key updates discussed in this document:

- Pharmacologic products introduced since publication of the 1998 "Diagnosis and Management of Rhinitis: Complete Guidelines"
- More defined positioning of agents (e.g., leukotriene receptor antagonists) in management based on more recent evidence
- Introduction of episodic as a term to describe rhinitis elicited by sporadic exposures to inhalant aeroallergens, and implications for treatment
- Use of certain agents—that is, intranasal corticosteroids—on an as-needed basis
- Emphasis on recognizing comorbidities of allergic rhinitis (AR), such as asthma, sinusitis, and obstructive sleep apnea, and conducting appropriate studies, such as pulmonary function testing and sleep apnea studies
- Evidence on using combination therapy, specifically leukotriene receptor antagonists with antihistamines
- Need to consider the benefits versus recently raised safety concerns about oral decongestants before their use in children below age 6 years
- Recommendation of considering second-generation antihistamines as safe agents for use during pregnancy
- Use of intranasal corticosteroids for symptoms of allergic conjunctivitis associated with rhinitis
- Consideration of using a Rhinitis Action Plan
- Emerging diagnostic and surgical procedures, such as acoustic rhinometry and radiofrequency volumetric tissue reduction

Summary Statements

Definition and Classification of Rhinitis

1. Rhinitis is characterized by 1 or more of the following symptoms: nasal congestion, rhinorrhea (anterior and posterior), sneezing, and itching. (D)

Differential Diagnosis of Rhinitis and Associated Conditions

2. Rhinitis should be classified by etiology as allergic or nonallergic and differentiated from conditions that mimic symptoms of rhinitis. (C)
3. Symptoms of allergic rhinitis may occur only during specific seasons, may be perennial without seasonal exacerbation, may be perennial with seasonal exacerbations, or may occur episodically after specific aeroallergen exposures. (C)
4. *Episodic* allergic rhinitis is a new rhinitis category that denotes allergic nasal symptoms elicited by sporadic exposures to inhalant aeroallergens. (D)
5. The severity of allergic rhinitis ranges from mild and intermittent to seriously debilitating. (D)
6. Although there is no generally accepted method of grading the severity of rhinitis, the clinician may want to consider a graphic rating scale. (D)
7. Mixed rhinitis (combined allergic and nonallergic rhinitis) is noted in approximately 44% to 87% of patients with allergic rhinitis and is more common than either pure allergic rhinitis or nonallergic rhinitis. (C)

Burden and Epidemiology of Rhinitis

8. Allergic rhinitis affects 30 to 60 million people in the United States annually, including 10% to 30% of adults and as many as 40% of children. (C)
9. Risk factors for allergic rhinitis include (1) family history of atopy, (2) serum immunoglobulin E (IgE) >100 international units (IU)/mL before age 6 years, (3) higher socioeconomic class, and (4) presence of a positive allergy skin prick test (SPT). (C)
10. The influence of early childhood exposure to infections, animals, and secondary tobacco smoke on the development of atopy and allergic rhinitis is still unknown. (C)
11. Aeroallergen sensitization may occur within the first 2 years of life. (C)
12. The cost of treating allergic rhinitis and indirect costs related to loss of workplace productivity resulting from the disease are substantial. Rhinitis is also a significant cause of lost work and school days. (C)

Allergic Rhinitis

Pathogenesis

13. The symptoms of allergic rhinitis result from a complex allergen-driven mucosal inflammation caused by interplay between resident and infiltrating inflammatory cells and a number of vasoactive and proinflammatory mediators, including cytokines. Sensory nerve activation, plasma leakage, and congestion of venous sinusoids also contribute. (C)
14. Allergic rhinitis may be characterized by early-phase and late-phase responses. Each type of response is characterized by sneezing, congestion, and rhinorrhea, but congestion predominates in the late phase. (C)

Seasonal and Perennial Allergic Rhinitis

15. Seasonal allergic rhinitis is caused by an IgE-mediated reaction to seasonal aeroallergens. The length of seasonal exposure to these allergens is dependent on geographic location and climatic conditions. (C)
16. Perennial allergic rhinitis is caused by an IgE-mediated reaction to perennial environmental aeroallergens. These may include dust mites, molds, animal allergens, or certain occupational allergens, as well as pollen in areas where pollen is prevalent perennially. (C)

Associated Allergic Conjunctivitis

17. Allergic rhinitis is often accompanied by symptoms of allergic conjunctivitis. (C)
18. Many treatments used for allergic rhinitis can benefit associated symptoms of allergic conjunctivitis, and a variety of topical ophthalmic agents is useful for specific treatment of associated ocular symptoms. (A)
19. Intranasal corticosteroids, oral antihistamines, and intranasal antihistamines have similar effectiveness in relieving ocular eye symptoms associated with rhinitis. (A)

Nonallergic Rhinitis Syndromes

20. Nonallergic rhinitis is characterized by periodic or perennial symptoms of rhinitis that are not a result of IgE-dependent events. Examples of nonallergic rhinitis are infectious rhinitis, vasomotor rhinitis, and the nonallergic rhinitis with eosinophilia syndrome (NARES). (C)

Vasomotor Rhinitis

21. Vasomotor rhinitis (idiopathic rhinitis) accounts for a heterogeneous group of patients with chronic nasal symptoms that are not immunologic or infectious in origin and is usually not associated with nasal eosinophilia. (D)

Rhinitis from Foods and Alcohol

22. Rhinitis may occur after ingestion of foods or alcoholic products. This may be a result of vagally mediated mechanisms, nasal vasodilation, food allergy, and/or other undefined mechanisms. Food allergy is a rare cause of rhinitis without associated gastrointestinal, dermatologic, or systemic manifestations. (B)

Infectious Rhinitis

23. Infectious rhinitis and rhinosinusitis may be acute or chronic. Acute infectious rhinitis is usually a result of 1 of a large number of viruses, but secondary bacterial infection with sinus involvement may be a complication. Symptoms of acute infectious rhinosinusitis include nasal congestion, mucopurulent nasal discharge, pain and pressure, headache, olfactory disturbance, postnasal drainage, and cough. (C)

24. Viral infections account for as many as 98% of acute infectious rhinitis and the majority of rhinitis symptoms in the young child. Routine nasopharyngeal cultures when bacterial infections are suspected do not add diagnostic value. (C)

NARES

25. NARES is characterized by nasal eosinophils in patients who have perennial symptoms and occasionally reduced sense of smell. These patients often lack evidence of allergic disease as demonstrated by absence of positive skin tests and/or specific IgE antibodies in the serum. (C)

Occupational Rhinitis

26. Occupational rhinitis is rhinitis arising in response to airborne substances in the workplace, which may be mediated by allergic or nonallergic factors, such as laboratory animal antigen, grain, wood dusts, chemicals, and irritants. It often coexists with occupational asthma (OA). (C)

Hormonal Rhinitis

27. Causes of hormonal rhinitis include pregnancy and menstrual cycle–related rhinitis. Pregnancy rhinitis, when present, is associated with significant nasal congestion, starts after the second month of pregnancy, and usually disappears within 2 weeks after delivery. (C)

Drug-Induced Rhinitis

28. Drug-induced rhinitis may be caused by a number of medications, including angiotensin-converting enzyme (ACE) inhibitors, phosphodiesterase-5–selective inhibitors, phentolamine, alpha-receptor antagonists, aspirin, and other nonsteroidal anti-inflammatory drugs (NSAIDs). Rhinitis medicamentosa is a syndrome of rebound nasal congestion that follows the overuse of intranasal alpha-adrenergic decongestants or cocaine. (C)

Atrophic Rhinitis

29. Treatment of primary and secondary atrophic rhinitis involves reducing crusting and alleviating the foul odor by continuous nasal hygiene, such as nasal lavage and crust debridement, and the use of topical and/or systemic antibiotics when purulent secretions or an acute infection is present. (C)

Conditions That Mimic Rhinitis

Nasal Polyps

30. Nasal polyps may occur in conjunction with chronic rhinitis or sinusitis and may contribute significantly to the patient's symptoms. Nasal polyps should always be considered in the differential diagnosis of patients who present with invariant nasal congestion and/or anosmia and its sequelae. Allergy as a

cause of nasal polyps has not been established, but nasal polyps may occur in conjunction with allergic rhinitis. (C)

Anatomic Abnormalities

31. Signs and symptoms suggestive of rhinitis can be produced by other conditions, including nasal septal deviation, tumors, and hypertrophy of the nasal turbinates. (C)
32. In infants and young children, nasal congestion or obstruction can result from structural problems, such as cleft palate and adenoidal hypertrophy, or functional problems, such as laryngopharyngeal reflux. (D)

Cerebral Spinal Fluid Rhinorrhea

33. Refractory clear rhinorrhea may be a result of cerebral spinal fluid (CSF) leak, which is often caused by trauma or recent surgery. (B)

Ciliary Dysfunction Syndromes

34. Ciliary dysfunction can be primary (primary ciliary dyskinesia; PCD) or secondary (e.g., viral infection) and may contribute to recurrent rhinitis and sinus infections. (C)

Evaluation and Diagnostic Studies

History

35. An effective evaluation of the patient with rhinitis often includes the following: a determination of the pattern, chronicity, and seasonality of nasal and related symptoms (or lack thereof); response to medications; presence of coexisting conditions; occupational exposure; and a detailed environmental history and identification of precipitating factors. (D)
36. Evaluation of rhinitis therapy should include assessment of quality of life (QOL). (C)

Physical Examination

37. A physical examination of all organ systems potentially affected by allergies with emphasis on the upper respiratory tract should be performed in patients with a history of rhinitis. The nasal examination supports but does not definitely establish the diagnosis of rhinitis. (D)

Table. Physical Examination of Patients Presenting with Symptoms Compatible with Rhinitis

Vital signs including weight and height should be recorded in all patients.
General observations: facial pallor, elongated facies, preferred mouth breathing, and any evidence of systemic disease.
Eyes: Excessive lacrimation, erythema and swelling of the bulbar and/or palpebral

conjunctiva, cobblestoning of the tarsal conjunctiva, swelling or dermatitis of outer eyelids, Dennie-Morgan lines, or venous stasis below the lower eyelids ("allergic shiners").

Nose: Reduced patency of nasal valve; alar collapse; transverse external crease; external deformity such as saddle nose; sepal deviation or perforation, spurs, ulcers, perforation, prominent vessels, or excoriation; nasal turbinate hypertrophy, edema, pallor or erythema, and crusting; discharge (amount, color, consistency), and nasal polyps. The presence of tumors or foreign bodies should be noted.

Ears: Tympanic membrane dullness, erythema, retraction, perforation, reduced or increased mobility, and air-fluid levels.

Oropharynx: Halitosis, dental malocclusion, high arched palate, tonsillar or adenoidal hypertrophy. Observe for malocclusion or high arched palate associated with chronic mouth breathing, tonsillar hypertrophy, cobblestoning of the oropharyngeal wall, pharyngeal postnasal discharge, temporomandibular joint pain or clicking with occlusion, furrowing, coating, or ulceration of tongue or buccal mucosa.

Neck: Lymphadenopathy, thyroid enlargement, or tenderness.

Chest: Signs of asthma. Chest wall deformity or tenderness, abnormal percussion, egophony, audible wheezing, or abnormal or diminished sounds by auscultation.

Abdomen: Tenderness, distension, masses, or enlargement of liver or spleen.

Skin: Rashes, especially eczematous or urticarial (distribution and description), or dermatographism.

Other organ systems when history or general observation indicate these should be included.

Testing for Specific IgE Antibody

Skin Testing

38. Determination of specific IgE, preferably by skin testing, is indicated to provide evidence of an allergic basis for the patient's symptoms, to confirm or exclude suspected causes of the patient's symptoms, or to assess the sensitivity to a specific allergen for avoidance measures and/or allergen immunotherapy. (B)
39. Skin tests are the preferred tests for the diagnosis of IgE-mediated sensitivity. The number of skin tests and the allergens selected for skin testing should be determined on the basis of the patient's age, history, environment, and living situation, such as area of the country, occupation, and activities. (D)

In Vitro Assays for Specific IgE

40. The precise sensitivity of specific IgE immunoassays compared with skin prick/puncture tests is approximately 70% to 75%. Immunoassays have

similar sensitivity to skin tests in identifying those patients with nasal symptoms elicited after natural or controlled allergen challenge tests. (C)

41. Interpretation of specific IgE immunoassays may be confounded by variables such as potency of allergens bound to solid support systems, cross-reactive proteins and glycoepitopes, specific IgG antibodies in the test serum, and high total IgE. (D)

Special Diagnostic Techniques

42. In selected cases, special techniques such as fiber optic nasal endoscopy and/or rhinomanometry may be useful in evaluating patients presenting with rhinitis symptoms. These tests may require special expertise for performance and interpretation. Patients with nasal disease require appropriate examination for associated diseases, such as sinusitis and otitis media. (B)
43. Nasal smears for eosinophils are not necessary for routine use in diagnosing allergic rhinitis when the diagnosis is clearly supported by the history, physical examination, and specific IgE diagnostic studies but may be a useful adjunct when the diagnosis of allergic rhinitis is in question. (C)
44. Although the saccharin test for mucociliary clearance has been relied on as a clinical screening test, it cannot be relied on for a definitive diagnosis of mucociliary dysfunction. (C)
45. Nasal biopsy may be indicated when determining whether a lesion is neoplastic or granulomatous or if there is an abnormality in the ultrastructure of cilia. (C)
46. The measurement of total IgE and IgG subclasses for the diagnosis of allergic rhinitis has limited value and should not be routinely performed. (C)
47. The presence of beta-2-transferrin in the nasal secretions is a sensitive method of confirming cerebral spinal fluid rhinorrhea. (B)

Special Testing Considerations in Children

48. In children with rhinitis, the use of immune studies, sweat test, sinus computed tomography (CT), and nasal endoscopy may be indicated when they are suspected to have comorbid conditions such as immune deficiency, cystic fibrosis (CF), and chronic sinusitis. (C)

Testing for Comorbid Conditions

49. A formal evaluation for obstructive sleep apnea may be considered in children and adults presenting with chronic rhinitis and other risk factors associated with sleep-disordered breathing. (C)
50. Pulmonary function tests should be considered in patients with rhinitis to assess the possibility that asthma might be present. (D)

Tests without Diagnostic Validity

51. There is no evidence that the following procedures have diagnostic validity for allergic rhinitis: cytotoxic tests, provocation-neutralization, electrodermal testing, applied kinesiology, iridology, and hair analysis. (B)

Management of Rhinitis

Environmental Control Measures

52. The most common allergic triggers for rhinitis include pollens, fungi, dust mites, furry animals, and insect emanations. (B)
53. The types of pollen responsible for rhinitis symptoms vary widely with locale, climate, and introduced plantings. (B)
54. Highly pollen-allergic individuals should limit exposure to the outdoors when high pollen counts are present. (B)
55. Fungi are ubiquitous organisms, many of which produce clinically important allergens. (B)
56. Reduction of indoor fungal exposure involves removal of moisture sources, replacement of contamination materials, and the use of dilute bleach solutions on nonporous surfaces. (D)
57. Clinically effective dust mite avoidance requires a combination of humidity control, dust mite covers for bedding, high efficiency particulate air (HEPA) vacuuming of carpeting, and the use of acaricides. (B)
58. Avoidance is the most effective way to manage animal sensitivity. (D)
59. Cockroaches are a significant cause of nasal allergy, particularly in inner-city populations (C)
60. The best treatment for rhinitis triggered by irritants, such as tobacco smoke and formaldehyde, is avoidance. (B)

Pharmacologic Therapy

<u>Oral Antihistamines</u>

61. Second-generation antihistamines are generally preferred over first-generation antihistamines for the treatment of allergic rhinitis. First-generation antihistamines have significant potential to cause sedation, performance impairment, and anticholinergic effects. Although occasionally advantageous (e.g., sleep induction when taken at bedtime or a reduction in rhinorrhea), these properties are usually undesirable and are potentially dangerous. Second-generation antihistamines have less or no tendency to cause these effects. (B)
62. Before prescribing or recommending a first-generation antihistamine, the physician should ensure that the patient understands both the potential for adverse effects and the availability of alternative antihistamines with a lower likelihood of adverse effects. (D)
63. There are important differences among the second-generation antihistamines in regard to their sedative properties: fexofenadine, loratadine, and desloratadine do not cause sedation at recommended doses; loratadine and desloratadine may cause sedation at doses exceeding the recommended dose; cetirizine and intranasal azelastine may cause sedation at recommended doses. (A)
64. Among the newer, nonsedating antihistamines, no single agent has been conclusively found to achieve superior overall response rates. (C)

<u>Intranasal Antihistamines</u>

65. Intranasal antihistamines may be considered for use as first-line treatment for allergic and nonallergic rhinitis. (A)

66. Intranasal antihistamines are efficacious and equal to or superior to oral second-generation antihistamines for treatment of seasonal allergic rhinitis. (A)
67. Because systemic absorption occurs, currently available intranasal antihistamines have been associated with sedation and can inhibit skin test reactions. (A)
68. Intranasal antihistamines have been associated with a clinically significant effect on nasal congestion. (A)
69. Intranasal antihistamines are generally less effective than intranasal corticosteroids for treatment of allergic rhinitis. (A)

Oral and Topical Decongestants

70. Oral decongestants, such as pseudoephedrine and phenylephrine, are alpha-adrenergic agonists that can reduce nasal congestion but can result in side effects such as insomnia, irritability, and palpitations. (A)
71. Oral and topical decongestant agents should be used with caution in older adults and young children, and in patients of any age who have a history of cardiac arrhythmia, angina pectoris, cerebrovascular disease, hypertension, bladder neck obstruction, glaucoma, or hyperthyroidism. (C)
72. Topical decongestants can be considered for short-term and possibly for intermittent or episodic therapy of nasal congestion, but are inappropriate for regular daily use because of the risk for the development of rhinitis medicamentosa. (C)

Over-the-Counter Cough and Cold Medications for Young Children

73. The efficacy of cold and cough medications for symptomatic treatment of upper respiratory tract infections has not been established for children younger than 6 years. Because of the potential toxicity of these medications, the use of these over-the-counter (OTC) drugs generally should be avoided in all children below 6 years of age. (A)

Intranasal Corticosteroids

74. Intranasal corticosteroids are the most effective medication class for controlling symptoms of allergic rhinitis. (A)
75. In most studies, intranasal corticosteroids have been shown to be more effective than the combined use of an antihistamine and leukotriene (LT) antagonist in the treatment of seasonal allergic rhinitis. (A)
76. Intranasal corticosteroids may provide significant relief of symptoms of seasonal allergic rhinitis when used not only on a regular basis but also on an as-needed basis. (B) However, as-needed use may not be as effective as continuous use of intranasal corticosteroids. (D)
77. When comparing the available intranasal corticosteroids, the overall clinical response does not appear to vary significantly between products irrespective of the differences in topical potency, lipid solubility, and binding affinity. (C)
78. Intranasal corticosteroids may be useful in the treatment of some forms of nonallergic rhinitis. (A)
79. Intranasal corticosteroids when given in recommended doses are not generally associated with clinically significant systemic side effects. (A)

80. Although local side effects are typically minimal with the use of intranasal corticosteroids, nasal irritation and bleeding may occur. Nasal septal perforation is rarely reported. (B)

Oral Corticosteroids

81. A short course (5 to 7 days) of oral corticosteroids may be appropriate for the treatment of very severe or intractable nasal symptoms or to treat significant nasal polyposis. However, single administration of parenteral corticosteroids is discouraged and recurrent administration of parenteral corticosteroids is contraindicated because of greater potential for long-term corticosteroid side effects. (D)

Intranasal Cromolyn

82. Intranasal cromolyn sodium is effective in some patients for prevention and treatment of allergic rhinitis and is associated with minimal side effects. It is less effective in most patients than corticosteroids and has not been adequately studied in comparison with LT antagonists and antihistamines. (A) For episodic rhinitis, administration just before allergen exposure protects for 4 to 8 hours against allergic response.

Intranasal Anticholinergics

83. Intranasal anticholinergics may effectively reduce rhinorrhea but have no effect on other nasal symptoms. Although side effects are minimal, dryness of the nasal membranes may occur. (A)
84. The concomitant use of ipratropium bromide nasal spray and an intranasal corticosteroid is more effective than administration of either drug alone in the treatment of rhinorrhea without any increased incidence of adverse events. (A)

Oral Anti-LT Agents

85. Oral anti-LT agents alone, or in combination with antihistamines, have proven to be useful in the treatment of allergic rhinitis. (A)

Omalizumab

86. Omalizumab has demonstrated efficacy in AR; however, it has US Food and Drug Administration (FDA) approval for use only in allergic asthma. (A)

Nasal Saline

87. There is evidence that topical saline is beneficial in the treatment of the symptoms of chronic rhinorrhea and rhinosinusitis when used as a sole modality or for adjunctive treatment. (A)

Allergen Immunotherapy

88. Allergen immunotherapy is effective for the treatment of allergic rhinitis. (A)

89. Allergen immunotherapy should be considered for patients with allergic rhinitis who have demonstrable evidence of specific IgE antibodies to clinically relevant allergens, and its use depends on the degree to which symptoms can be reduced by avoidance and medication, the amount and type of medication required to control symptoms, and the adverse effects of medications. (A)
90. Allergen immunotherapy may prevent the development of new allergen sensitizations and reduce the risk for the future development of asthma in patients with allergic rhinitis. (B)

Surgery

91. Although there is no surgical treatment for allergic rhinitis, surgery may be indicated in the management of comorbid conditions, such as nasal obstruction from severe nasal septal deviation or inferior turbinate hypertrophy, adenoidal hypertrophy, or refractory sinusitis and complications thereof. (C)

Management Decisions

92. Management and monitoring of rhinitis should be individualized and based on the spectrum, duration, and severity of symptoms; physical examination findings; comorbidities; age of the patient; and patient preferences using both step-up and step-down approaches. (C)
93. Effective allergic rhinitis management requires the development of a physician/patient/family partnership, avoidance of environmental triggers, and the appropriate use of prescribed therapeutic interventions. (C)

Education of Patient and Caretakers

94. Education is a key element in promoting adherence and optimizing treatment outcomes in allergic rhinitis. (D)

Major Comorbid Conditions

95. Patients with allergic rhinitis are at increased risk for the development of asthma. (A)
96. Treatment of allergic rhinitis may improve asthma control in patients with coexisting allergic rhinitis and asthma. (B)
97. There is no established cause-and-effect relationship of rhinitis with recurrent otitis media and otitis media with effusion (OME). (C)

Special Considerations

Pregnancy

98. When selecting medications for treating rhinitis in pregnancy, the clinician might consider the FDA risk categories that are based largely on animal data and limited human studies. However, it is also beneficial to review human cohort and case-control studies as well as birth registry data before reaching a decision. (C)

99. The most critical time for concern about potential congenital malformation because of medication use is the first trimester, when organogenesis is occurring. (D)
100. A sufficient amount of human observational data has now been accumulated to demonstrate safety for second-generation as well as first-generation antihistamines. (C)
101. Oral decongestants should be avoided during the first trimester. Topical decongestants when used on a short-term basis may have a better safety profile than oral agents for first trimester use. (C)
102. Sodium cromolyn is a safe treatment for allergic rhinitis during pregnancy. (C)
103. Montelukast is a safe treatment for allergic rhinitis during pregnancy. (C)
104. Intranasal corticosteroids may be used in the treatment of nasal symptoms during pregnancy because of their safety and efficacy profile. (C)
105. Immunotherapy for allergic rhinitis may be continued during pregnancy but without dose escalation. (C)

Elderly Patients

106. Rhinitis in the elderly may be caused by types of rhinitis common in other age groups but may also be influenced by age-related physiologic changes such as cholinergic hyperactivity, anatomic changes, and medications taken for other medical conditions. (C)

Athletes

107. Athletic performance can be affected by rhinorrhea and chronic or rebound nasal congestion. Rhinitis medication for the competitive athlete must be a US Olympic Committee (USOC) and/or International Olympic Committee (IOC)–approved product and should be one that does not adversely affect performance. (C)

Consultation with an Allergist/Immunologist

108. Allergist/immunologist care improves patient outcomes; however, consultation/referral services are often underused. (C)
109. Consultation with an allergist/immunologist should be considered for patients with rhinitis who have inadequately controlled symptoms, a reduced QOL and/or ability to function, adverse reactions to medications, a desire to identify the allergens to which they are sensitized and to receive advice on environmental control, or comorbid conditions such as asthma and recurrent sinusitis, or when allergen immunotherapy is a consideration. (C)

Definitions:

Category of Evidence

Ia Evidence from meta-analysis of randomized controlled trials

Ib Evidence from at least 1 randomized controlled trial

IIa Evidence from at least 1 controlled study without randomization

IIb Evidence from at least 1 other type of quasi-experimental study

III Evidence from nonexperimental descriptive studies, such as comparative studies

IV Evidence from expert committee reports or opinions or clinical experience of respected authorities, or both

LB Evidence from laboratory-based studies

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Strength of Recommendation

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C. Directly based on category III evidence or extrapolated recommendation from category I or II evidence
D. Directly based on category IV evidence or extrapolated recommendation from category I, II, or III evidence

CLINICAL ALGORITHM(S)

A clinical algorithm is provided in the original guideline document for the diagnosis and management of rhinitis.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations" field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Accurate diagnosis and effective management of rhinitis
- Appropriate management of rhinitis may be an important component in effective management of coexisting or complicating respiratory conditions, such as asthma, sinusitis, or chronic otitis media.

POTENTIAL HARMS

Antihistamines

- First-generation antihistamines have significant potential to cause sedation, performance impairment (that may not be subjectively perceived by patients), and/or anticholinergic effects (such as dry mouth and eyes, constipation, urinary retention, and an increased risk for provocation of narrow-angle glaucoma). The use of first generation antihistamines has been associated with increased automobile and occupational accidents, decreased work performance and productivity, and impaired learning and academic performance in children.
- Concomitant use of other central nervous system active substances such as alcohol, sedatives, hypnotics, and antidepressants may further enhance performance impairment from antihistamines.

Oral and Topical Decongestants

- Oral decongestants can result in side effects such as insomnia, irritability, and palpitations, hypertension.
- Oral and topical decongestant agents should be used with caution in older adults and young children, and in patients of any age who have a history of cardiac arrhythmia, angina pectoris, cerebrovascular disease, hypertension, bladder neck obstruction, glaucoma, or hyperthyroidism.
- Topical decongestants are inappropriate for regular daily use because of the risk for the development of rhinitis medicamentosa.

Intranasal Corticosteroids

Intranasal corticosteroids when given in recommended doses are not generally associated with clinically significant systemic side effects. Although local side effects are typically minimal with the use of intranasal corticosteroids, nasal irritation and bleeding may occur. Nasal septal perforation is rarely reported.

Intranasal Anticholinergics

Although side effects of intranasal anticholinergics are minimal, dryness of the nasal membranes may occur.

Nasal Saline

The use of topical saline is associated with minimal side effects such as burning, irritation, and nausea.

Allergen Immunotherapy

- Patients may experience local swelling at the injection site of subcutaneous immunotherapy and, on rare occasions, an anaphylactic reaction to allergen immunotherapy.
- There should be a cautious attitude in regard to the concomitant use of beta-adrenergic blocking agents and allergen immunotherapy because beta-adrenergic blocking agents might make allergen immunotherapy–related systemic reactions more difficult to treat.

Refer to Tables VI and VII and the section on pharmacologic therapy in the original guideline document for additional information on side effects of medications used for rhinitis.

Subgroups Most Likely to Be Harmed

Children

Growth suppression from intranasal corticosteroids has been reported only with long-term use of beclomethasone dipropionate that exceeded recommended doses or administration to toddlers.

Elderly Patients

- *Ipratropium bromide* should be used with caution with pre-existing glaucoma or prostatic hypertrophy.
- Selection of medications for rhinitis treatment should take into account that elderly patients may be more susceptible to adverse effects of some of these medications.

Rhinitis in Pregnancy

- When selecting medications for the pregnant patient, the US Food and Drug Administration (FDA) pregnancy risk categories should be considered (see Table X in the original guideline document). Concern about the potential for congenital malformation because of medication use occurs primarily during the first trimester, when organogenesis is occurring.
- Although *diphenhydramine* is frequently used during pregnancy and has good overall safety data, administration of diphenhydramine has been associated with the development of cleft palate. See Tables XI and XII in the original guideline document for more information on antihistamines in pregnancy.
- Allergen immunotherapy for allergic rhinitis may be continued during pregnancy, if it is providing benefit without causing systemic reactions. Benefit/risk considerations do not generally favor starting immunotherapy for allergic rhinitis during pregnancy.

CONTRAINDICATIONS

CONTRAINDICATIONS

- Oral decongestants should be avoided during the first trimester of pregnancy because of conflicting reports of an association of phenylephrine and pseudoephedrine with congenital malformations such as gastroschisis and small intestinal atresia.
- Because of the potential toxicity of over-the-counter cough and cold medications, these drugs should be avoided in children below 6 years of age.
- Single administration of parenteral corticosteroids is discouraged and recurrent administration of parenteral corticosteroids is contraindicated because of greater potential for long-term corticosteroid side effects.
- Contraindications for allergen immunotherapy include patients with medical conditions that would reduce their ability to survive allergen immunotherapy

systemic allergic reactions or the resultant treatment. Examples include severe asthma uncontrolled by pharmacotherapy and significant cardiovascular disease.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This is a complete and comprehensive document at the current time. The medical environment is a changing environment, and not all recommendations will be appropriate for all patients. Because this document incorporated the efforts of many participants, no single individual, including those who served on the Joint Task Force, is authorized to provide an official American Academy of Allergy, Asthma, and Immunology (AAAAI) or American College of Allergy, Asthma, and Immunology (ACAAI) interpretation of these practice parameters. Any request for information about or an interpretation of these practice parameters by the AAAAI or ACAAI should be directed to the Executive Offices of the AAAAI, ACAAI and the Joint Council on Allergy, Asthma and Immunology. These parameters are not designed for use by pharmaceutical companies in drug promotion.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Chart Documentation/Checklists/Forms
Clinical Algorithm

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness
Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Wallace DV, Dykewicz MS, Bernstein DI, Blessing-Moore J, Cox L, Khan DA, Lang DM, Nicklas RA, Oppenheimer J, Portnoy JM, Randolph CC, Schuller D, Spector SL, Tilles SA, Joint Task Force on Practice, American Academy of Allergy, Asthma & Immunology, American College of Allergy, Asthma and Immunology, Joint Council of Allergy, Asthma and Immunology. The diagnosis and management of rhinitis: an updated practice parameter. J Allergy Clin Immunol 2008 Aug;122(2 Suppl):S1-84. [998 references] PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

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GUIDELINE DEVELOPER(S)

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Joint Council of Allergy, Asthma and Immunology - Medical Specialty Society

GUIDELINE DEVELOPER COMMENT

These parameters were developed by the Joint Task Force on Practice Parameters, representing the American Academy of Allergy, Asthma and Immunology; the American College of Allergy, Asthma and Immunology; and the Joint Council of Allergy, Asthma and Immunology.

SOURCE(S) OF FUNDING

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The other authors have declared that they have no conflict of interest.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Diagnosis and management of rhinitis. Ann Allergy Asthma Immunol 1998 Nov;81(5 Pt 2):478-518. [297 references]

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Joint Council of Allergy, Asthma, and Immunology (JCAAI) Web site.

Print copies: Available from JCAAI, 50 N. Brockway, Ste 3-3 Palatine, IL 60067.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Allergic rhinitis. Fact sheet. 2 p. Available in Portable Document Format (PDF) from the American Academy of Allergy, Asthma, and Immunology (AAAAI) Web site.

  Print copies: Available from JCAAI, 50 N. Brockway, Ste 3-3 Palatine, IL 60067

- Sample rhinitis medication action plan. J Allergy Clin Immunol 2008;122(6):1237. Electronic copies: Available in Portable Document Format (PDF) from the Journal of Allergy and Clinical Immunology Web site.

Additionally, symptom severity and quality of life assessment tools can be found in the original guideline document.

PATIENT RESOURCES

None available

NGC STATUS

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